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EXAMINER	
LE, VU	

ART UNIT	PAPER NUMBER
2613	4

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/965,491	Applicant(s) LIPPINCOTT, LOUIS A.	
	Examiner Vu Le	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4,6-14,17-22 and 24-30 is/are rejected.

7)☒ Claim(s) 5,15,16 and 23 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 September 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2,3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, *except* that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

2. Claims 1-4, 6-9, 11-14, 17, 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Korta et al, US 6,356,663.

Re claim 1, Korta et al discloses a method of transferring video through an interface (Summary Of The Invention, figs. 1 & 3) comprising:

compressing a first portion of a block of coefficients, the block of coefficients representing a block of pixels (fig. 3: 304,306, col. 5, lines 37-44);

sending the compressed first portion of coefficients to the interface (fig. 1: 114, also col. 3, lines 23-36, col. 4, lines 26-33, col. 6, lines 33-53, in these segments, the interface is the system bus 114);

compressing a second portion of the block of coefficients (fig. 3: 310,312);

and sending the compressed second portion of coefficients to the interface (col. 6, lines 54-67, in this segment, like the DC encoded data i.e. "first portion", the AC encoded data i.e. "second portion" are exchanged via system bus interface 114).

Re claim 2, the method as claimed in claim 1 wherein a reception device (figs. 2 & 6) receives and decompresses the first and second portions of coefficients (fig. 6: 602-610), combines the decompressed first portion of coefficients with the decompressed second portion of coefficients to generate a combined coefficient matrix corresponding with the block of pixels (col. 8, line 36 to col. 9, line 15).

Claim 3 recites "[T]"he method as claimed in claim 1 wherein the matrix of coefficients has a low frequency portion and a high frequency portion, wherein compressing the first portion of the coefficients comprises compressing the low frequency portion of the coefficients, and wherein sending the compressed first portion of coefficients sends the compressed low frequency portion of coefficients to the interface, and wherein compressing the second portion of the coefficients comprises compressing the high frequency portion of the coefficients, and wherein sending the compressed second portion of coefficients comprises sending the compressed high frequency portion of coefficients[.]" (With respect to the discussion in claim 1 above and fig. 6 of Korta et al, the updated display image (612) has both DC and AC decoded coefficients i.e. both "first" and "second" portions respectively. The DC coefficient (first portion) represents a low frequency portion and the AC coefficients (second portion) represent a high frequency portion. Each of these portions are respectively compressed and sent as discussed in claim 1).

Claim 4 recites "[T]"he method as claimed in claim 1 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and wherein compressing and sending the first portion of coefficients are performed for each block of pixels of each frame in the sequence prior to performing compressing and sending the second portion of coefficients[.]" (Col. 8, lines 1-33, in this segment, "the image signals" is inherently a representation of a sequence of frames. Figure 3 shows that compressing/sending first portion is prior to compressing/sending second portion).

Claim 6 recites "[T]"he method as claimed in claim 1 wherein a reception device receives and decompresses the first and second portions of coefficients, combines the decompressed first portion of coefficients with the decompressed second portion of coefficients to generate a combined coefficient matrix corresponding with the block of pixels, and generates a bit stream from the combined coefficient matrix[.]" (The limitations of claim 6 have been analyzed and rejected w/r to claim 2. See also fig. 6 and col. 8, lines 58-63. The resultant decoded signal i.e. bit stream would appear at output of 610).

Claim 7 recites "[T]he method as claimed in claim 1 wherein the second portion of coefficients is exclusive of coefficients of the first portion[.]" (Claim 7 has been analyzed and rejected w/r to claim 1. In Korta et al, the first portion of coefficients is DC coefficient, and the second portion of coefficients is AC coefficients, which are exclusive of the first portion as claimed).

Claim 8 recites "[T]"he method as claimed in claim 1 wherein the video is comprised of a sequence of digital frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and wherein a transform is performed on each block of pixels resulting in the matrix of coefficients corresponding with each block of pixels, the method further comprising: receiving a sequence of analog video frames; and converting the sequence analog video frames to the sequence of digital video frames, wherein each pixel is represented by at least one byte[.]" (Claim has been analyzed and rejected w/r to claim 4. Furthermore, Korta et al in col. 3, lines 1-22 discloses analog video image signals and converting them into digital image signals. It is inherent that a pixel is represented by at least one byte).

Claim 9 recites "[T]"he method as claimed in claim 1 wherein the interface is low data rate interface providing a communication link with a reception device having a data rate between 1 and 20 Mbps[.]" (Korta et al discloses transmission may be over PSTN, ISDN, RF, LAN or RAN. Any of these communication links is inherently capable of data rate between 1 and 20 Mbps).

Claim 11 recites "[T]"he method as claimed in claim 1 further comprising performing a transform on the block of pixels resulting in the matrix of coefficients corresponding with the block of pixels[.]" (Claim 11 has been analyzed and rejected w/r to claim 1. Also, figure 3 shows a DCT transform of blocks of pixels).

Claim 12 recites "[T]"he method as claimed in claim 11 wherein transforming the block of pixels comprises performing a discrete cosine transform (DCT) on the block of pixels resulting in a matrix of DCT coefficients corresponding with the block of pixels[.]"

(Claim 12 has been analyzed and rejected w/r to claims 1 and 11. Also, figure 3 shows a DCT transform of blocks of pixels).

Re claim 13, Korta et al discloses a method of generating a high quality video bit stream from coefficients received over an interface (Summary Of The Invention, figs. 2 & 6) , the method comprising:

decompressing a first portion of coefficients (604);

decompressing a second portion of the coefficients received subsequent to the first portion (608,610);

and combining the first and second portions of coefficients to generate a combined coefficient matrix corresponding with a block of pixels (612, col. 8, line 36 to col. 9, line 15).

Claim 14 recites "[T]"he method as claimed in claim 13 wherein the block of pixels is represented by a matrix of coefficients comprised of the first and second portions, the first portion being compressed prior to being sent over a low data rate interface[.]" (Claim 14 has been analyzed and rejected w/r to claim 1).

Claim 17 recites "[T]"he method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions, the method further comprising: receiving the first portion of coefficients for each block of pixels for frames of the sequence over the interface; storing the first portion of coefficients for each block of pixels for frames of the sequence; and upon completion of receiving the first portion

of coefficients, receiving the second portion of coefficients for each block of pixels for frames of the sequence[.]" (Claim 17 has been analyzed and rejected w/r to claims 1-2. Furthermore, in figure 6 of Korta et al, when the first portion of coefficients i.e. DC coefficients are received, storage of these coefficients are inherent. It can be seen that the second portion of coefficients i.e. AC coefficients are received afterward).

Claim 21 recites "[T]"he method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions, the method further comprising: transforming the combined coefficient matrix for each block of pixels to a bit stream representing the video; and storing the bit stream[.]" (Claim 21 has been analyzed and rejected w/r to claim 6. As for storing the bit stream, this is buffering prior to transmission, which is inherent in Korta et al).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 22, 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korta et al.

Claim 10 recites "[T]"he method as claimed in claim 9 wherein the interface is a universal serial bus (USB) interface. Korta et al discloses a bus interface for a PC

driven coding/transmission system (fig. 1). Korta et al fails to specifically disclose a USB interface. However, during the time the Korta et al invention were patented, USB is notoriously well known and used for PC based driven system. Therefore, it would have been obvious and advantageous for a PC driven coding/transmission system of Korta et al to utilize USB for the benefit of attaining universal data exchange among peripherals.

Re claim 22, Korta et al discloses a system for generating a bit stream representing a high quality video (figs. 1-2, 3 & 6) comprising:

a serial interface (see analysis/rejection w/r to claim 10) to receive first and second portions of coefficients of a coefficient matrix (see analysis/rejection w/r to claims 1-2);

a decompressing element (figs. 2 & 6) to decompress the first portion of coefficients and to decompress the second portion of coefficients, the second portion being received subsequent to the first portion (see analysis/rejection w/r to claim 2);

and a combining element to combine the first and second portions of coefficients to generate a combined coefficient matrix corresponding with a block of pixels (see analysis/rejection w/r to claim 2).

Claim 24 recites "[T]"he system as claimed in claim 22 wherein the processing element generates the bit stream from the combined coefficient matrix, and the system further comprising a storage element for storing the bit stream[.]" (See analysis/rejection w/r to claim 21).

Re claim 25, Korta et al discloses a video capture device (figs. 1-2, 3 & 6) comprising:

a compressing element to transform a block of the pixels to a corresponding matrix of coefficients and compress a first portion of the coefficients (116, 304, 306, col. 3, lines 23-35, col. 5, lines 47-44);

a serial interface to send the compressed first portion of coefficients over a serial link (see analysis/rejection w/r to claim 10);

and a controller (116) to instruct the compressing element to compress a second portion of the coefficients and cause the compressed second portion of coefficients to be sent to the serial interface (col. 6, lines 33-53).

Claim 26 recites "[T]"he device as claimed in claim 25 wherein the controller instructs the compressing element to compress the second portion of the coefficients after the compressed first portion of coefficients have been sent over a serial link[.]" (See analysis/rejection w/r to claims 1 and 4).

Claim 27 recites "[T]"he device as claimed in claim 25 wherein a video is comprised of a sequence of frames wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and the compressing element transforms each block of pixels a matrix of coefficients corresponding with each block of pixels[.]" (See analysis/rejection w/r to claims 1, 3-4).

Claim 28 recites "[T]"he device as claimed in claim 27 wherein each matrix of coefficients has a low frequency portion and a high frequency portion, wherein the compressing element compresses the low frequency portion of the coefficients for each

matrix of coefficients, and the interface sends the compressed low frequency portion of coefficients for each block of pixels[.]" (See analysis/rejection w/r to claim 3).

Claim 29 recites "[T]"he device as claimed in claim 27 further comprising a decoder element (102) to receive a sequence of analog video frames and to convert the sequence of analog video frames to a sequence of digital video frames, wherein each pixel is represented by at least one byte[.]" (See also col. 3, lines 7-11).

Claim 30 recites "[T]"he device as claimed in claim 25 wherein the serial interface is a universal serial bus (USB) interface providing a communication link with a reception device and having a data rate between 1 and 20 Mbps, and wherein the compressor includes a hardware accelerator to perform a discrete cosine transform (DCT) on the block of pixels resulting in a matrix of DCT coefficients corresponding with the block of pixels[.]" (See analysis/rejection w/r to claims 9-12).

5. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korta et al as applied to claim 13 above and further in view of Ohkuma et al, US 5,845,041.

Re claim 18, Korta et al discloses the method as claimed in claim 13, also including wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients (see analysis and rejection w/r to claim 4). Korta et al fails to disclose the method further comprising providing a indication to resend the first portion of coefficients for initial frames of the sequence upon completion

of receiving the first portion of coefficients for each block of pixels of each frame of the sequence as claimed.

Ohkuma et al discloses (col. 12, lines 1-19) that in high-speed replay for image decoding, only important components are decoded and replayed. Each video signal, divided into four subbands, contains important video data components in its low-frequency band (LL band). Also, of the components obtained by the orthogonal transform i.e. DCT of each LL band, lower frequency components contain image data components of greater importance. Therefore, if a scene is replayed using only the lower frequency components, the content of the scene is sufficiently recognizable. Accordingly, only six coefficients representing lower frequency components are selected for high-speed replay. Within the context of claim 18, the selected six coefficients representing lower frequency components for high-speed replay as disclosed in Ohkuma et al reads on the resending of first portion of coefficients for initial frames based on an indication to resend as claimed.

Therefore, taking the combined teaching of Korta et al and Ohkuma et al as a whole, it would have been obvious to modify the decoding method of Korta to include high-speed replay of selected low frequency transformed coefficients which in effect is the resending of first portion of coefficients for initial frames based on an indication to resend as claimed. Doing so would greatly enhances the ability to correct or detect errors in the low-frequency coefficients that cause appreciable degradation of image on the decoding side, so that any errors occurring in such low-frequency coefficients can

be easily corrected or detected. Higher data compression ratio is also achieved (Ohkuma et al, col. 8, lines 26-41).

Claim 19 recites "[T]"he method as claimed in claim 18 wherein the indication comprises sending a replay signal to a video capture device[.]" (Claim 19 has been analyzed and rejected w/r to claim 18).

Claim 20 recites "[T]"he method as claimed in claim 18 wherein the indication comprises displaying a replay signal to instruct a user to replay the video[.]" (Claim 20 has been analyzed and rejected w/r to claim 18. Furthermore, a replay signal to instruct a user to replay the video as claimed is implied in Ohkuma et al during high-speed replay since high-replay is a user dictated operation).

Allowable Subject Matter

6. Claims 5, 15-16, 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 recites "[T]"he method as claimed in claim 4 further comprising: repeating compressing and sending the first portion of the coefficients for a set of initial frames of the sequence; and performing compressing and sending the second portion of coefficients for each block of pixels for frames subsequent to receiving a switch mode signal, wherein the reception device decompresses and decodes the first portion of coefficients for each frame to match one of the initial frames with a previously sent frame, the method further comprising: receiving the switch mode signal from the reception device; and switching from compressing and sending the first portion of

coefficients to compressing and sending the second portion of coefficients[.]" The prior art of record fails to anticipate or render obvious the limitations of compressing/sending the second portion of coefficients dependent upon the reception of a switch mode signal in the manner as claimed.

Claim 15 recites "[T]"he method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions, the method further comprising: receiving for a second time the first portion of coefficients for each block of pixels of initial frames of the sequence; matching one of the initial frames with a previously received frame to identify a reference frame; and signaling a video capture device to send the second portion of coefficients for each block of pixels of frames subsequent to the reference frame[.]" The prior art of record fails to anticipate or render obvious the limitations of receiving for a second time the first portion of coefficients for each block of pixels of initial frames of the sequence; matching one of the initial frames with a previously received frame to identify a reference frame; and signaling a video capture device to send the second portion of coefficients for each block of pixels of frames subsequent to the reference frame in the manner as claimed. Claim 15 governs claim 16.

Claim 23 recites "[T]"he system as claimed in claim 22 further comprising a processing element to match an initial frame with a previously received frame and send a signal to the interface during a vertical blanking interval, the signal requesting a video

capture device to compress and send the second portion of coefficients[.]" The prior art of record fails to anticipate or render obvious the limitations of claim 23 in the manner as claimed.

Contact

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Le whose telephone number is 703-308-6613. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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